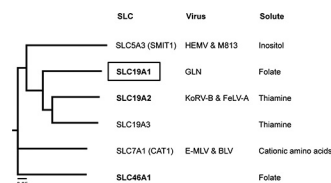




## Articles of Significant Interest in This Issue

### Mouse GLN Endogenous Retrovirus Uses SLC19A1, a Folate Transporter, as a Receptor

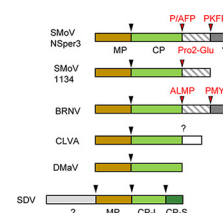
The GLN retrovirus, named for its glutamine tRNA primer-binding site, is a mouse endogenous retrovirus with at least one functional infectious element present in the mouse genome. Tsang et al. (e01125-18) identified SLC19A1, a reduced folate carrier, as the cellular receptor allowing infection of cells by the GLN virus. These findings add to the list of solute carrier proteins that are used by gammaretroviruses to mediate infection and therefore highlight their role as entry points for this class of mammalian pathogens.



SLC19A1 and other related proteins are used as receptors by several retroviruses.

### Plant Virus Encodes a Glutamic Protease for Polyprotein Processing

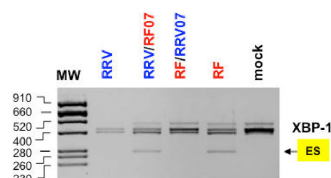
Many viruses use a polyprotein strategy to modulate the expression and activity of viral proteins throughout an infectious cycle. Almost half of all plant viruses encode a protease belonging to the cysteine, serine, or aspartic families of proteases. Mann et al. (e01679-18) report that strawberry mottle virus (family *Secoviridae*, order *Picornavirales*) encodes an additional glutamic protease for polyprotein processing. This protease is predicted to share structural similarities with the glutamic proteases found exclusively in some fungal and bacterial pathogens. These results highlight the evolution and diversity of plant viral proteases.



Processing map of the RNA2 polyprotein of selected members of the family *Secoviridae*.

### Rotavirus Infection Alters Splicing of Stress-Related Transcription Factor XBP1

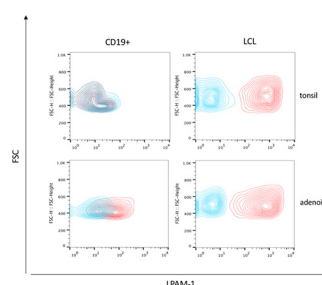
Rotavirus causes severe gastroenteritis in young children worldwide. Like many viruses, infection with rotavirus inhibits cellular protein synthesis. Duarte et al. (e01739-18) discovered that perturbing translation initiation in the cytoplasm in turn alters RNA splicing in the nucleus. Infection with some rotavirus strains induces exon skipping in mRNA encoding XBP1, a stressed-induced transcription factor involved in immune responses. The genetic determinant of this XBP1 splicing is rotavirus RNA translation enhancer NSP3. These findings raise the possibility of alternative splicing as a cellular response to rotavirus infection and point to a new way to activate XBP1.



Exon skipping (ES) in XBP1 mRNA in rotavirus-infected cells.

### B Cells Infected by Epstein-Barr Virus Express LPAM-1 and Home to Gut Lymphoid Tissue

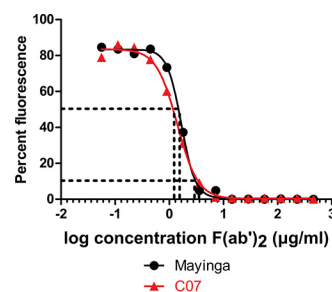
B cells latently infected with Epstein-Barr virus (EBV) are detected mainly in the oropharynx and peripheral blood. However, EBV-driven B-cell lymphoproliferations frequently involve the gut. Delecluse et al. (e01618-18) report that EBV-infected B cells express LPAM-1, an integrin dimer that interacts with MAdCAM-1, an addressin that controls access to gut-associated lymphoid tissue (GALT). Latently infected B cells home to the GALT, resulting in EBV-induced lymphoid tumors that develop in the gut.



Expression of the LPAM-1 integrin dimer before (CD19<sup>+</sup>) and after (LCL) EBV infection of resting B cells (red, LPAM-1 antibody; blue, isotype control).

### Horse-Origin Polyclonal Antibodies Are an Effective Treatment for Ebola

Ebola is highly lethal to humans, causing outbreaks in sub-Saharan Africa with up to 90% mortality rates. Monoclonal antibodies, such as Zmapp, can reverse advanced disease, but high costs and technical difficulties in large-scale production limit their usefulness. Wang et al. (e01548-18) produced high quantities of polyclonal sera [F(ab')<sub>2</sub>] from horses immunized with an Ebola vaccine. The rate of survival was 100% in monkeys given F(ab')<sub>2</sub> as late as 5 days after infection when animals were viremic with visible symptoms. These results provide support for using F(ab')<sub>2</sub> as a cost-effective alternative to treat Ebola patients.



F(ab')<sub>2</sub> neutralizes Ebola virus in tissue culture.